CLAIMS

What is claimed is:

1. An apparatus for maintaining a stable RF level in an optical link, said apparatus comprising:

a transmitter section;

a receiver section;

a plurality of feedback loops operationally connected to said transmitter section; and

a plurality of feedback loops operationally connected to said receiver section.

2. The apparatus of claim 1, wherein the feedback loops perform at least one function selected from the group consisting of:

i. RF level stabilization effects;

ii. preserve or change optical modulation index (OMI);

iii. adjust output power;

iv. compensate for temperature changes;

v. compensate for laser or system tracking errors;

vi. provide gain at proper places in circuitry; and

vii. provide RF input changes.

3. The apparatus of claim 2, wherein the feedback loops operationally connected to said transmitter section include a first, second, and third transmitter section feedback loops.

4. The apparatus of claim 2, wherein the feedback loops operationally connected to said receiver section include a first and second receiver section feedback loops.

5. The apparatus of claim 3, wherein the first transmitter feedback loop is a constant power feedback loop.

6. The apparatus of claim 3, wherein the second transmitter feedback loop is a bias current feedback loop connected between the transmitter section and an attenuation circuit in an RF path.

7. The apparatus of claim 5, wherein the attenuation circuit is a PIN transistor circuit.

8. The apparatus of claim 3, wherein the second transmitter feedback loop is a bias current feedback loop.

9. The apparatus of claim 3, wherein the third transmitter feedback loop provides an RF level from a back facet monitor.

10. The apparatus of claim 9, further including an oscillator operationally connected to said third transmitter feedback loop.

11. The apparatus of claim 10, wherein said oscillator is characterized by an operational frequency of about 100 kHz.

12. The apparatus of claim 10, wherein said oscillator has an output signal, said output signal coupled to an input of an RF detector, said RF detector having an attenuating output proportional to said input, and said attenuating output coupled to the attenuation circuit.

13. The apparatus of claim 4, wherein the first receiver feedback loop is an optical modulation voltage (OMV) feedback loop, said optical modulation voltage feedback loop connected to RF circuitry in said receiver section.

14. The apparatus of claim 4, wherein the second receiver feedback loop is an oscillator signal feedback loop, said oscillator feedback loop connected to RF circuitry in said receiver section.

15. The apparatus of claim 14, wherein said oscillator feedback loop includes an oscillator tuned to a frequency of about 100 kHz.

16. The apparatus of claim 14, wherein said oscillator feedback loop includes a device to modulate said oscillator feedback.

17. A method of stabilizing an RF level in an optical link, said method comprising:

providing an optical signal transmitter section;

providing an optical signal receiver section;

providing a plurality of feedback loops to said optical signal transmitter section; and

providing a plurality of feedback loops to said optical signal receiver section.

18. The method of claim 17, wherein the feedback loops perform at least one function selected from the group consisting of:

i. RF level stabilization effects;

ii. preserve or change optical modulation index (OMI);

iii. adjust output power;

iv. compensate for temperature changes;

v. compensate for laser or system tracking errors;

vi. provide gain at proper places in circuitry; and

vii. provide RF input changes.

19. The method of claim 17, wherein the feedback loops operationally connected to said transmitter section include a first, second, and third transmitter feedback loops.

20. The method of claim 17, wherein the feedback loops operationally

connected to said receiver section include a first and second receiver feedback loops.

21. The method of claim 18, wherein the first transmitter feedback loop is a constant power feedback loop.

22. The method of claim 18, wherein the second transmitter feedback loop is a bias current feedback loop connected between the transmitter section and an attenuation circuit in an RF path.

23. The method of claim 21, wherein the attenuation circuit is a PIN transistor circuit.

24. The method of claim 18, wherein the second transmitter feedback loop is a bias current feedback loop.

25. The method of claim 18, wherein the third transmitter feedback loop provides an RF level from a back facet monitor.

26. The method of claim 24, further including an oscillator operationally connected to said third transmitter feedback loop.

27. The method of claim 25, wherein said oscillator is characterized by an

operational frequency of about 100 kHz.

28. The method of claim 25, wherein said oscillator has an output signal, said output signal coupled to an input of an RF detector, said RF detector having an attenuating output proportional to said input, and said attenuating output coupled to the attenuation circuit.

29. The method of claim 19, wherein the first receiver feedback loop is an optical modulation voltage (OMV) feedback loop, said optical modulation voltage feedback loop connected to RF circuitry in said receiver section.

30. The method of claim 19, wherein the second receiver feedback loop is an oscillator signal feedback loop, said oscillator feedback loop connected to RF circuitry in said receiver section.

31. The method of claim 29, wherein said oscillator feedback loop includes an oscillator tuned to a frequency of about 100 kHz.

32. The method of claim 29, wherein said oscillator feedback loop includes a device to modulate said oscillator feedback.

33. An optical transmission system comprising:

an optical signal transmitter section;

an optical signal receiver section;

an RF stabilization system operationally connected to said optical signal transmitter section; and

an RF stabilization system operationally connected to said optical signal receiver section.

34. The optical transmission system of claim 33, wherein the optical transmission system is a cable television (CATV) system.